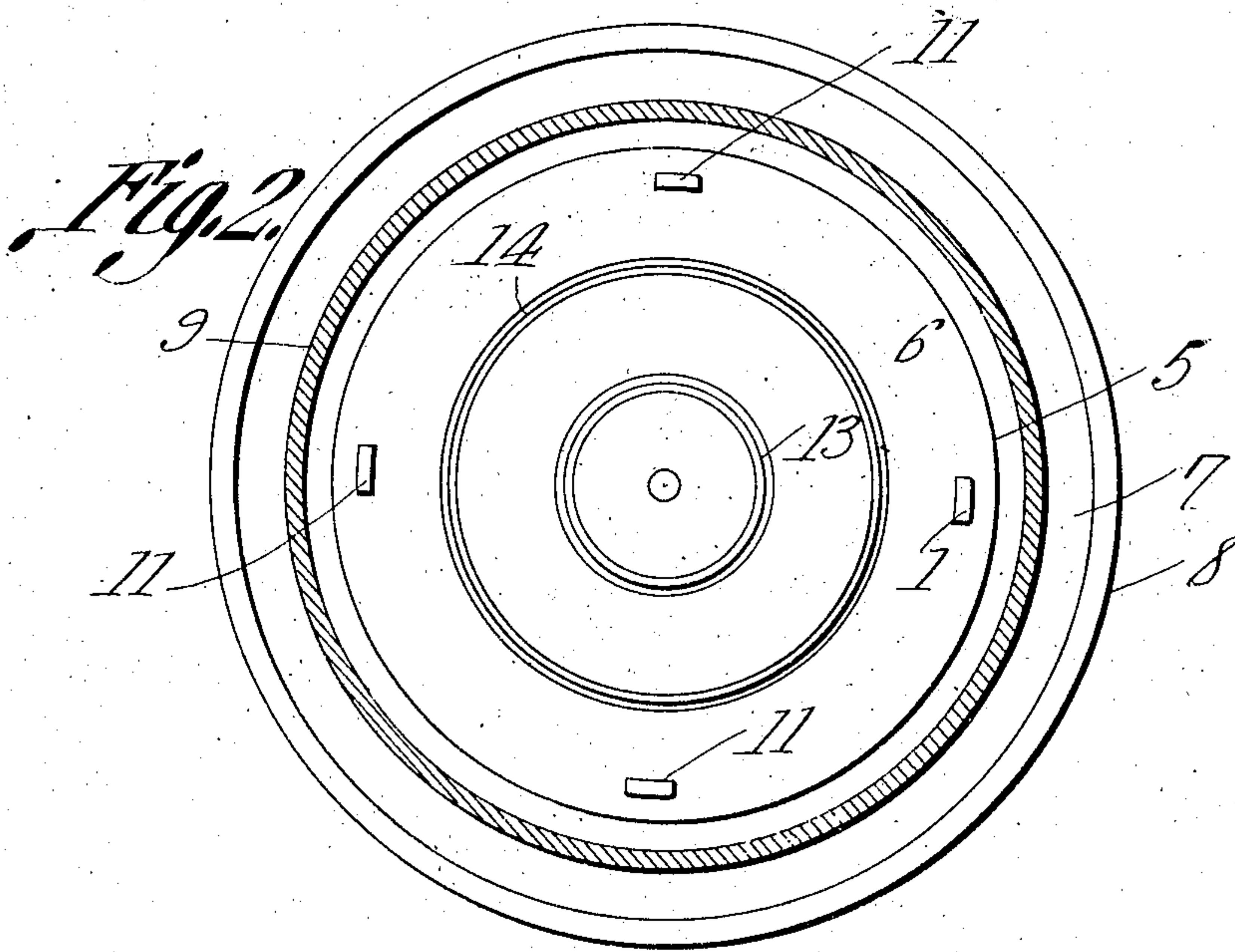
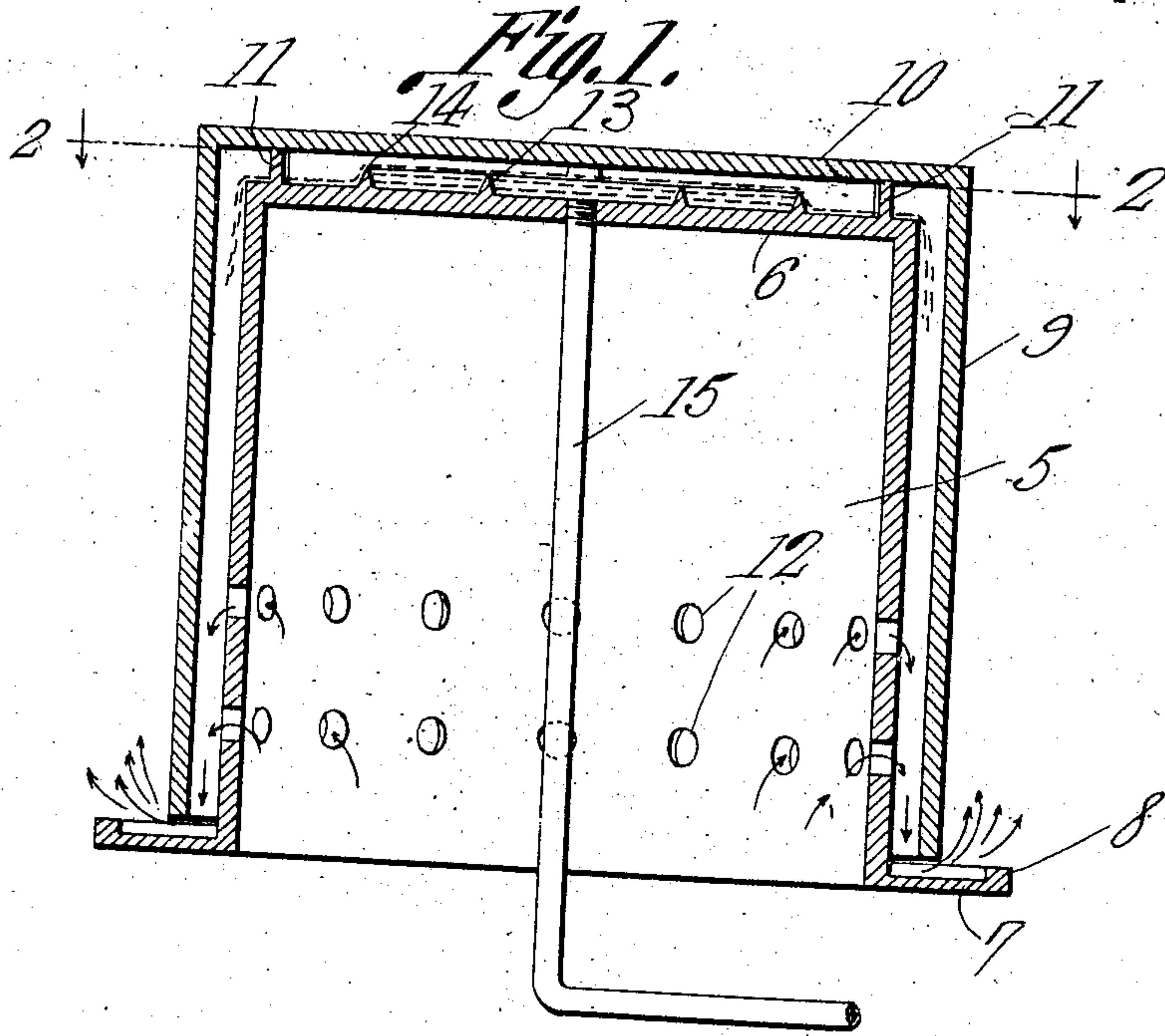


989,640.

L. S. PROVIN.
LIQUID FUEL BURNER.
APPLICATION FILED NOV. 29, 1910.

Patented Apr. 18, 1911.



Witnesses

J. P. Goulet
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UNITED STATES PATENT OFFICE.

LEONARD S. PROVIN, OF NEVADA, MISSOURI.

LIQUID-FUEL BURNER.

989,640.

Specification of Letters Patent.

Patented Apr. 18, 1911.

Application filed November 29, 1910. Serial No. 594,715.

To all whom it may concern:

Be it known that I, LEONARD S. PROVIN, a citizen of the United States, residing at Nevada, in the county of Vernon and State of Missouri, have invented a new and useful Liquid-Fuel Burner, of which the following is a specification.

It is the object of the present invention to provide an improved liquid fuel burner, the primary aim of the invention being to provide a burner of this type so constructed that perfect vaporization of the liquid fuel will be insured prior to its ignition.

Another novel feature of the invention resides in the means provided for feeding the liquid fuel over the surface of a shell of the burner which shell is heated to such degree as to vaporize the liquid fuel, it being, after vaporization, ignited at the lower end of the member upon the surface of which it is vaporized, means being provided for admitting air to the vaporized fluid immediately prior to its ignition.

With the above and other objects in view, the invention resides in the general construction and arrangement of parts set forth in the appended claims and shown in the accompanying drawings in which—

Figure 1 is a vertical sectional view through a burner constructed in accordance with the present invention. Fig. 2 is a horizontal sectional view on the line 2—2 of Fig. 1 looking in a downward direction.

In the drawings, the burner embodying the present invention is illustrated as including, in its structure, an inner shell 5 which is preferably cylindrical although it may be of other form. This shell is closed at its top as at 6 and at its base is formed with an outstanding flange 7 extending entirely therearound and having an upturned edge 8. A shell 9, also cylindrical in form and closed at its top as at 10, is fitted over the shell 5 and rests at its said top upon upstanding spacing lugs 11 upon the upper side of the top 6 of the inner shell, these lugs serving to space the tops 6 and 10 of the shells 5 and 9 respectively. The shell 9 is of greater diameter than the shell 5 and consequently its vertical wall is spaced from the vertical wall of the shell 5. For a purpose to be presently explained, the shell 5 is formed, in its vertical wall, near its lower end, with a plurality of openings 12 here shown as arranged in two series one above another. The lower

end of the shell 9 terminates immediately above the flange 7.

Formed upon the upper surface of the top 6 of the inner shell 5 are upstanding overflow ribs 13 and 14, these ribs being arranged concentrically with the rib 14 surrounding the rib 13. The upper edges of the ribs are spaced from the under surface of the top 10 of the outer shell. A fuel supply pipe indicated by the numeral 15 is extended upwardly into the shell 5 and opens at its upper end through the top of the said shell. This pipe 15, at its point of insertion through the top 6 of the inner shell is surrounded by the overflow ribs 13 and 14, these ribs being furthermore concentric to the axis of the shell.

The operation of the burner is as follows:—Liquid fuel of any desired sort is admitted through the fuel supply pipe 15 and flows from the upper end of this pipe onto the upper surface of the top 6 of the inner shell of the burner. The level of the liquid rises until it overflows the rib 13 whereupon the level between this rib and the rib 14 rises until it overflows the rib 14. The fuel will then flow in a film over the portion of the said upper surface of the top 6 outwardly of the rib 14, and over the outer surface of the vertical wall of the said shell 5. As soon as the first quantity of fuel in the liquid form reaches the flange 7 it is ignited. The flames will issue from the space between this flange and lower end edge of the vertical wall of the inner shell 5 as illustrated in Fig. 1 of the drawing. The heat currents generated in this manner will draw in air through the openings 12 into the space between the vertical walls of the shells 5 and 9 and this air mixes with the fuel, which in the meantime has become vaporized, by reason of the heating of the inner shell 5, and the gaseous mixture thus formed, thereafter burns at the flange 7. At this point it will be readily understood that the liquid fuel which is held upon the upper surface of the top 6 of the inner shell 5 by the ribs 13 and 14, will become heated and partly vaporized before it overflows the rib 14 so that as soon as the film of liquid fuel overflowing from this rib, touches the surface of the top 6 beyond the said rib, it will be converted into vapor and in this form will mix with the air entering through the openings 12.

What is claimed is:

1. In a liquid fuel burner, an inner shell closed at its top and having a circumscribing flange at its base, the said shell being
5 formed with openings near its base, an outer shell fitted over the inner shell and closed at its top and spaced at its top from the top of the inner shell, overflow ribs upon the upper surface of the top of the
10 inner shell and spaced at their upper edges from the under surface of the top of the outer shell, and a fuel supply pipe opening through the top of the inner shell.

2. In a liquid fuel burner, an inner shell closed at its top and having a circumscribing flange at its base, the said shell being
15 formed with openings near its base, an outer shell fitted over the inner shell and closed at its top and spaced at its said top from the top of the inner shell, overflow ribs upon the upper surface of the top of the inner shell and spaced at their upper edges
20 from the under surface of the top of the

outer shell, and a fuel supply pipe opening through the top of the inner shell, the said
25 ribs surrounding the point at which the fuel supply pipe opens through the said top of the inner shell.

3. In a liquid fuel burner, an inner shell closed at its top and having a circumscribing flange at its base, the said shell being
30 formed with openings near its base and upon the upper surface of its top with overflow ribs arranged concentrically about the axis of the top, an outer shell fitted over
35 the inner shell and closed at its top and spaced from the inner shell, and a fuel supply pipe opening axially through the top of the inner shell.

In testimony that I claim the foregoing
40 as my own, I have hereto affixed my signature in the presence of two witnesses.

LEONARD S. PROVIN.

Witnesses:

JOSEPH HARPER,
B. W. HARPER.